

ADJUSTABLE RETAINER FOR TRANSPORTING ARTICLES

## BACKGROUND AND SUMMARY

This disclosure relates to articles for carrying objects. Particularly, this disclosure relates to a cable formed in a loop that is adjustable by operating a retainer 5 so that the size of the loop can be changed to secure articles of varying configurations for transportation of such articles.

Various methods are known for transporting articles without the use of one's hands. For example, tools are commonly transported in a tool belt, beverage containers are commonly transported in cup holders, and miscellaneous items are 10 carried in pockets.

In one aspect of the present disclosure, an article carrier comprises a flexible cable having a first end, a second end, and an intermediate portion between the ends. The intermediate portion is formed into a loop, and a cable retainer engages the cable to restrict movement of the cable relative to the cable retainer. The cable 15 retainer is operable to permit a user to adjust the size of the loop.

In another aspect of the disclosure, the article carrier further comprises a clip coupled to the cable to secure the article carrier to an object.

In a further aspect of the disclosure, the cable retainer includes an engagement surface and an engagement edge, one of which is biased toward the other. 20 The cable passes between and is pinched by the engagement surface and engagement edge to inhibit movement of the cable relative to the cable retainer.

In another aspect of the disclosure, the cable retainer is operable to move the engagement edge and engagement surface away from each other to permit the cable to be moved relative to the cable retainer and to permit a user to adjust the 25 length of the loop.

In a further aspect of the disclosure, an apparatus comprises a clip, a cable, and a cable retainer. The cable is coupled to the clip for removably coupling the apparatus to an object. The cable includes a pair of free ends and an intermediate portion extending therebetween. A length of the intermediate portion is threaded 30 through an opening in the cable retainer and formed into a loop. The cable retainer is biased to pinch the cable between an engagement surface and an engagement edge of

the cable retainer to restrict movement of the cable relative to the cable retainer and maintain the length of cable forming the loop.

In another aspect of the disclosure, the apparatus further comprises a bead coupled to the cable to prevent removal of the cable retainer from the cable.

5 In a further aspect of the disclosure, the apparatus further comprises a clasp coupled to the ends of the cable to form a continuous loop.

In another aspect of the disclosure, the apparatus further comprises a clasp cover to cover at least a portion of the clasp.

10 In a further aspect of the disclosure, the clasp cover includes an exterior surface that is at least partially flat.

In another aspect of the disclosure, the clasp cover includes an exterior surface that is at least partially spherical.

15 In a further aspect of the disclosure, the clip includes a first end and a second end, the first and second ends joined by a link at one side and by a movable closure at the other side. The closure is biased to close an opening between the first and second ends. The closure is movable to an opened position to permit entry of an object between the ends by passing the object through the opening.

20 In another aspect of the disclosure, the closure is pivotably coupled to one of the ends and moves between a closed position engaging the other end and an opened position spaced from the other end.

25 In a further aspect of the disclosure, an apparatus for transporting a fluid vessel having a neck comprises a cable and a cable retainer. The cable is formed into a loop, and the cable retainer is biased to engage the cable to restrict movement of the cable relative to the cable retainer and maintain the length of cable forming the loop.

In another aspect of the disclosure, the cable is an endless loop.

In a further aspect of the disclosure, the cable has a pair of free ends and an intermediate portion extending therebetween, and a length of the intermediate portion is formed into the loop.

30 In another aspect of the disclosure, the apparatus further comprises a bead coupled to the cable to prevent removal of the cable retainer from the cable.

In a further aspect of the disclosure, the apparatus further comprises a clasp coupled to the ends of the cable to form the continuous loop.

In another aspect of the disclosure, the apparatus further comprises a clasp cover to cover at least a portion of the clasp.

5 In a further aspect of the disclosure, the clasp cover includes an exterior surface that is at least partially flat.

In a further aspect of the disclosure, the clasp cover includes an exterior surface that is at least partially spherical.

10 In another aspect of the disclosure, the apparatus further comprises a clip including a first end and a second end. The first and second ends are joined by a link at one side and by a movable closure at the other side. The closure is biased to close an opening between the first and second ends. The closure is movable to an opened position to permit entry of an object between the ends by passing through the opening.

15 In a further aspect of the disclosure, the closure is pivotably coupled to one of the ends and moves between a closed position engaging the other end and an opened position spaced from the other end.

20 In another aspect of the disclosure, the cable retainer is movable to a position permitting movement of the cable to adjust the length of cable forming the loop.

In a further aspect of the disclosure, a method of retaining a first object comprises providing an article carrier comprising a clip and a loop coupled to the clip. The method also comprises placing a portion of the first object in the loop, adjusting the size of the loop to secure the first object, and coupling the clip to a second object.

25 In another aspect of the disclosure, placing a portion of the first object in the loop comprises placing a portion of a beverage container in the loop.

In a further aspect of the disclosure, coupling the clip to a second object comprises coupling the clip to at least one of a belt or belt loop, a strap or ring of a handbag or a fanny pack, a golf bag, a hammer loop, a pocket edge, or the like.

30 In another aspect of the disclosure, an article carrier comprises a flexible cable having a first end, a second end, and an intermediate portion between the ends. A lock is coupled to the ends to form a major loop. The article carrier

further comprises a cable retainer that engages the cable to restrict movement of the cable relative to the cable retainer and to define a minor loop adjacent the lock. The cable retainer is operable to permit a user to adjust the size of the minor loop.

In a further aspect of the disclosure, an apparatus comprises a clip, a  
5 cable, and a cable retainer. The cable is coupled to the clip for removably coupling the apparatus to an object. The cable has a pair of free ends and an intermediate portion extending therebetween. A length of the intermediate portion is threaded through an opening in the cable retainer and coupled to the clip. A lock coupled to the free ends forms a minor loop. The cable retainer is biased to pinch the cable  
10 between an engagement surface and an engagement edge of the cable retainer to restrict movement of the cable relative to the cable retainer and maintain the length of cable forming the minor loop.

In another aspect of the disclosure, an apparatus for transporting a fluid vessel having a neck comprises a cable and a cable retainer. The cable has a pair of  
15 ends and an intermediate portion extending therebetween. A length of the cable is formed into a minor loop. The cable retainer is biased to engage the cable to restrict movement of the cable relative to the cable retainer and maintain the length of cable forming the minor loop.

In a further aspect of the disclosure, an article carrier comprises a  
20 flexible cable formed into a major loop and a cable retainer engaging the cable to restrict movement of the cable relative to the cable retainer and to form a minor loop. The cable retainer is operable to permit a user to adjust the size of the minor loop.

In another aspect of the disclosure, a method of retaining a fluid vessel having a neck is provided. The method comprises the steps of providing an article  
25 carrier comprising a flexible cable formed into a major loop, a clip coupled to the cable to couple the fluid vessel to an object, and a cable retainer engaging the cable to form a minor loop and adjust the size of the minor loop. The method also comprises placing the neck in the minor loop, moving the cable retainer to tighten the minor loop around the neck, and coupling the clip to the object.

30 Additional features of the present invention will become apparent to those skilled in the art upon consideration of the following detailed description of

preferred embodiments exemplifying the best mode of carrying out the invention as presently perceived.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The detailed description particularly refers to the accompanying figures in which:

5 Fig. 1 is a perspective view of an article carrier in accordance with the disclosure showing a flexible cable that forms a loop, the cable being coupled to a clip and a cable retainer for permitting a user to change the length of the section of the cable that forms the loop;

10 Fig. 2 is a perspective view of the article carrier of Fig. 1 showing the loop end of the article carrier cinched around the neck of a bottle;

15 Fig. 3 is a perspective view showing an assembled article carrier in the middle of the page, an exploded article carrier on the left showing the ends of the cable uncoupled beside a blank clasp and crimped clasp, the cable coupled to a first curved end of the clip, with the clip closure, the pin, and the spring removed from the clip, the cable retainer and bead coupled to the cable, and on the right side of the page a clasp cover and a cable retainer exploded to show the shell, the spring, and the piston;

20 Fig. 4 is a close-up view of the exploded clip showing the cable coupled to the first curved end, the pin, the closure, and spring removed;

Fig. 5 is a close-up view of an assembled clip showing the closure moved to an opened position;

25 Fig. 6 is a perspective view of three cable retainers, the left retainer being exploded to show the piston positioned for insertion into a central passage of the retainer shell, and the spring between the piston and the shell, the middle retainer assembled and shown in the normal position where a top of the piston is biased and extends out of a central passage in the shell, and the right retainer shown with the top of the piston depressed, the piston in a position where a first passage through the shell is aligned with a cable passage through the piston;

Fig. 7 is a close-up perspective view of the exploded cable retainer showing a tab on the piston, and a channel in the central passage in the shell to receive the tab as the piston is inserted into the central passage;

5 Fig. 8 is a perspective view of the article carrier of Fig. 1 showing the cable pinched by the first and second engagement surfaces;

Fig. 9 shows a clasp wrapped around the cable ends and crimped to hold the ends together;

10 Fig. 10 is a top view of a cable having first and second ends coupled together with a lock to form a major loop, with each of the first and second ends extending through a cable retainer to form a minor loop, the cable retainer operable to permit a user to adjust the size of the minor loop; and

Fig. 11 is a perspective view of the lock of Fig. 10 in an unlocked position.

#### DETAILED DESCRIPTION

15 As shown in Fig. 1, an illustrative embodiment of an article carrier 10 includes a flexible cable 20, a clip 30, a cable retainer 60, a cable clasp 90 (shown in Fig. 3), a cover 194, and a bead 98. Cable 20 is illustratively a length of rope; however, any flexible material that is provided as a loop or can be formed into a loop and otherwise operate as disclosed herein will suffice. Clip 30 is illustratively a 20 carabiner or a spring clip. It is understood that various other clips, cables, clasp covers, and cable retainers may be used within the spirit of this invention.

As shown in Figs. 3-5, clip 30 includes a first curved end 32 having a first radius of curvature, a second curved end 34 having a second radius of curvature, and a link 36 coupled to and extending between the first and second curved ends 32, 25 34 at a closed side 38 of clip 30. First and second curved ends 32, 34 are spaced apart at an open side 40 of clip 30. As shown in Figs. 4 and 5, first curved end 32 is coupled to an extension 42 that extends toward the second curved end 34. Extension 42 is formed to include an aperture 44 therethrough. Clip 30 includes a closure 46 coupled to extension 42 that extends between the first and second curved ends 32, 34 30 to close and open the open side 40 of clip 30 at the option of a user. Closure 46 at a

coupled portion 47 is pivotally coupled to first curved end 32 at extension 42 with a pin 48 extending through holes in closure 46 and aperture 44.

As closure 46 pivots about pin 48, a free portion 49 of closure 46 moves between the closed position shown in Fig. 1 engaging second curved end 34 and an opened position as shown in Fig. 5 spaced apart from second curved end 34. 5 Free portion 49 of closure 46 is formed to include a notch 52 terminating at a stop surface 54. Closure 46 includes a spring 50 that engages coupled portion 47 and extension 42 to bias closure 46 in the closed position. To move closure 46 from the closed position shown in Fig. 1 toward the opened position shown in Fig. 5, a user 10 moves closure 46 in direction 59, against the bias of spring 50.

Second curved end 34 includes a stopper 56 extending therefrom. When closure 46 is moved to the closed position, stopper 56 is situated in notch 52 in free portion 49 and engages stop surface 54 to prevent over-rotation of closure 46 (beyond the closed position) in direction 58 as shown in Fig. 5. It is within the scope 15 of this disclosure to utilize a clip having a different configuration. For example, a clip of the type often used on a dog leash may be substituted for the carabiner type clip shown in Fig. 5.

Cable 20 includes an intermediate portion 22 between a first end 24 and a second end 26. Illustratively, cable 20 is coupled to clip 30 by forming a small 20 loop in intermediate portion 22 of cable 20, holding the small loop adjacent first curved end 32, and inserting ends 24, 26 through the loop. Cable 20, as best illustrated in Fig. 3, is about fourteen inches (35.5 cm) measuring from first end 24, along intermediate portion 22, to second end 26. It is believed that such a fourteen inch (35.5 cm) overall cable length provided as part of an article carrier as shown in 25 Fig. 1, and illustratively resulting in a looped cable length of between six and seven inches (15.2 and 17.8 cm), as shown in Fig. 1, provides a comfortable distance between the beverage container or other object to be carried and, for example, a person transporting the beverage container or other object to be carried. However, any length of cable that operates as disclosed herein will suffice. For example, cables 30 having lengths from less than four inches (10 cm) to more than twenty-four inches (61 cm) will suffice. It is within the scope of this disclosure for cable 20 to be constructed as an unbroken, endless loop, with the length being measured from one

point on the loop, around the loop, and back to the one point. It is also within the scope of this disclosure for cable 20 to be formed of multiple endless loops or cable lengths with ends and joining these structures together in any suitable fashion.

Cable retainer 60 includes a shell 62, a piston 64, and a spring 66 to 5 bias the cable retainer to a pinching position, as shown in Fig. 6 in the retainer at the right of Fig. 6. Shell 62 includes a first passage 68 extending through shell 62, forming a cable inlet 70 on one side of the shell and a cable outlet 72 on the opposite side of the shell. A central passage 74 is formed in shell 62 and extends generally orthogonal to first passage 68, terminating at a bottom surface 76 of shell 62. Central 10 passage 74 is configured to house spring 66 and part of piston 64 for movement therein. Piston 64 is illustratively a right circular cylinder having a cable passage 78 formed therein.

Spring 66 is inserted into central passage 74 against bottom surface 76. Piston 64 is inserted into central passage 74 so that a spring boss 67 fits within the end 15 of the illustrative coil spring opposite the end that engages bottom surface 76. Retention tabs 80 extend radially outwardly from piston 64 at bottom 81 of the piston. Tabs 80 complement channels 82 formed in inner surface 83 of shell 62 that defines central passage 74. Channels 82 extend from the inlet of central passage 74 to the first passage 68. Tabs 80 are positioned so that when piston 64 is inserted into central 20 passage 74, each tab 80 slides in a channel 82 until the tab is in first passage 68. Piston 64 is then rotated so that tab 80 is not in channel 82 and instead abuts the edge 84 of first passage 68. Thus, piston 64 is retained in central passage 74 and biased so that tabs 80 engage edge 84 and a top 85 of piston 64 extends out of central passage 74. In this position, cable passage 78 in piston 64 is generally aligned with first 25 passage 68 of shell 62. It is within the scope of this disclosure to use a cable retainer having a different configuration.

Illustratively, cable clasp 90 joins cable 20 into a continuous loop. Clasp 90, when not assembled, illustratively is a flat piece of metal. To form the continuous loop, ends 24, 26 are positioned adjacent each other and clasp is wrapped 30 around the cable ends, and crimped tightly around the ends as shown in Fig. 9.

One way to assemble article carrier 10 includes folding cable 20 so that intermediate portion 22 forms a loop with first end 24 of cable 20 closer to the

loop than second end 26 of cable 20. Second end 26 is then inserted through first passage 68 in shell 62 and cable passage 78 in piston 64. Second end 26 is then passed through bore 99 in bead 98 that is illustratively sized to receive one pass of cable 20 therethrough. Second end is then passed back through first passage 68 in

5 shell 62 and cable passage 78 in piston 64, in the opposite direction. Ends 24, 26 are then positioned adjacent each other and clasp 90, illustratively a metal sheet, is wrapped around ends 24, 26 and crimped to tightly hold the ends together. It is within the scope of this disclosure to rearrange the steps of assembly, or to omit one or more steps. For example, cable 20 can first be inserted through bore 99 in bead 98,

10 formed into a loop, and the ends inserted through cable retainer 60. The ends 24, 26 can be joined and coupled together with clasp 90 prior to coupling the cable to clip 30. Furthermore, bead 98 can be omitted from article carrier 10, for example when a cable retainer is used that does not permit looped end 28 to be pulled through the cable retainer, such as a retainer having a pair of cable passageways separated by a

15 dividing wall.

Cable retainer 60 is positioned between clip 30 and a looped end 28 of article carrier 10. Illustratively, top 85 of piston 64 is biased to move out of central passage 74, biasing first engagement surface 87 of cable passage 78 toward engagement edge 84 of first passage 68 of shell 62. Thus, as shown in Fig. 8, cable

20 is pinched by first engagement surface 87 and engagement edge 84 offsetting first passage 68 and cable passage 78 and thus restricting the size of the opening through cable retainer 60 through which cable 20 passes. This maintains the length of cable 20 extending from loop side 86 of cable retainer 60. Alternate arrangements are possible. For example, a strap may be used to provide length from the clip to the

25 looped end.

In operation of article carrier 10, clip 30 is coupled to an object, for example a belt or belt loop, a strap or ring of a handbag or a fanny pack, a golf bag, a hammer loop, a pocket edge, or the like. Cable 20 at looped end 28 is looped around the article to be carried, as shown in Fig. 2. Top 85 of piston 64 is depressed to

30 change the length of cable 20 extending from loop side 86 of cable retainer 60. When top 85 is moved toward the depressed orientation, first passage 68 and cable passage 78 move toward alignment with each other and cable 20 is no longer pinched by first

engagement surface 87 and engagement edge 84. Thus, a user can pull cable 20 at looped end 28 of article retainer 10 and increase or decrease the length of cable extending from the loop side 86 of shell 62. As such, a user can adjust cable 20 to cinch looped end 28 snugly around the article to be retained, as shown in Fig. 2. To 5 remove the article being retained, a user actuates cable retainer 60 as previously mentioned, and moves cable retainer 60 along cable 20 generally away from the article, increasing the length of cable 20 extending from the loop side 86 of shell 62. Illustratively, a fluid retaining vessel or beverage container is shown as the article to be retained. However, other articles may be retained using the apparatus and method 10 disclosed herein.

The clasp 90 and the ends of cord 20 are illustratively masked using cover 194. Illustratively, cover 194 has a first portion and a second portion that are placed on respective sides of clasp 90 and coupled to each other, for example by gluing, melting, through the use of fasteners, and the like. Cover 194 includes an 15 outer surface 95 that can be used for advertising, decoration, and the like. Cover 194 can be constructed using any suitable material, for example plastic, foam, metal, and the like. It is within the scope of this disclosure to couple together ends 24, 26 by any suitable method, including tying, heat sealing, or otherwise coupling the ends together in addition to or in place of coupling the ends together using clasp 90.

20 As shown in Fig. 10, another illustrative embodiment of an article carrier 110 includes a flexible cable 120, a clip 130, a cable retainer 160, a cable lock 190 (shown in Fig. 11), and a cover 194. Cable 120 is illustratively a length of rope; however, any flexible material that is provided as a loop or can be formed into a loop and otherwise operate as disclosed herein will suffice.

25 Cable 120 includes an intermediate portion 122 between a first end 124 and a second end 126. Illustratively, cable 120 is coupled to clip 130 by forming a small loop in intermediate portion 122 of cable 120, holding the small loop adjacent an end 132 of clip 130, passing ends 124, 126 around and through end 132, and then through the small loop, coupling cable 120 to clip 130 as shown in Fig. 10. Ends 124, 30 126 are threaded through cable retainer 160 and illustratively are aligned so that a first length 134 of cable 120 associated with one end is about the same length as a second length 136 of cable 120 associated with the other end. Ends 124, 126 are joined with

lock 190, forming a major loop 127 from cable 120 and lock 190. Ends 124, 126, cable retainer 160, and lock 190 form a minor loop 128. Cable retainer 160 is operable to move along the length of cable 120 to increase or decrease the size of minor loop 128. Cable retainer 160 is positioned on cable 120 between lock 190 and 5 clip 130. The size of minor loop 128 is adjusted by moving cable retainer 160 along cable 120.

Illustratively, cable lock 190 joins cable ends 124, 126 forming cable 120 into a continuous major loop 127. To form the major loop 127, ends 124, 126 are positioned adjacent each other in lock 190 when lock 190 is in the unlocked position 10 shown in Fig. 11. Lock 190 is moved to the locked orientation of Fig. 10 to retain the ends 124, 126 in lock 190 and maintain the cable 120 in the major loop 127 shown in Fig. 10. Lock 190, in its locked position shown in Fig. 10 clamps against ends 124, 126, holding the ends within lock 190.

As best observed in Fig. 11 in its unlocked orientation, lock 190 15 includes a first section 210 and a second section 212 hinged to the first section 210 at a thinned region 211. Thinned region 211 flexes to permit the first and second sections 210, 212 to move relative to each other. Walls 214, 216 extend from opposite sides of first section 210. First section 210 is formed to include a pair of apertures 213 therethrough adjacent walls 214, 216. A plurality of spikes 218 extend 20 from the surface of first section 210, illustratively generally parallel to walls 214, 216. Spikes 218 engage ends 124, 126 of cable 120 to retain the ends, and the spikes 218 are illustratively aligned to form two rows of three spikes each. Other numbers and configurations of spikes 218 are within the scope of this disclosure. Walls 220, 222 extend from opposite sides of second section 212. A plurality of spikes 218 extend 25 from the surface of second section 212, generally parallel to walls 220, 222. A tab 224 extends from each wall 220, 222 and is aligned with a corresponding one of apertures 213. When lock 190 is in the locked position of Fig. 10, each tab 224 cooperates with the corresponding aperture 213 to secure lock 190 in the locked 30 position. When lock 190 is in the locked position, spikes 218 of first section 210 and spikes 218 of second section 212 point or extend toward each other, cooperating to engage and retain ends 124, 126 therein. Walls 214, 216 are spaced apart from each other a distance sufficient to permit walls 220, 222 of second section 212 to fit

therebetween. Other configurations of lock 190 are within the scope of this disclosure.

Article carrier 110 can be assembled in a similar fashion as described above with reference to article carrier 10. Ends 124, 126 are positioned so that they 5 are at an end of the minor loop 128 that is opposite clip 130. Ends 124, 126 are positioned adjacent each other and lock 190 is moved to the locked position. Cable retainer 160 is positioned between clip 130 and lock 190. Operation of article carrier 110 is similar to operation of article carrier 10. For example, minor loop 128 is placed around the neck of a bottle or other object, and cable retainer 160 is actuated 10 and moved relative to cable 120 toward lock 190 until minor loop 128 is of a size so that the bottle or other object is held by article carrier 110.

Cover 194 covers a section of intermediate portion 122. Illustratively, cover 194 has a first portion and a second portion that are placed on respective sides of lock 190 and coupled to each other, for example by gluing, melting, through the 15 use of fasteners, and the like. Cover 194 includes an outer surface 195 that can be used for advertising, decoration, and the like. Cover 194 can be constructed using any suitable material, for example plastic, foam, metal, and the like. Illustratively, cover 194 may be adjacent clip 130 to inhibit removal of cable 120 from clip 130.

Although the invention has been described in detail with reference to 20 certain illustrative features or embodiments, variations and modifications exist within the scope and spirit of the invention as shown and described.